

SEP 24 2007

Claim Amendments:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of continuously coating at least one substrate with a buffer layer as a support for a ceramic superconducting material comprising loading the at least one substrate having opposite major surfaces onto a respective feed spool, feeding the at least one substrate across a substrate block through within a deposition zone in a vacuum deposition chamber wherein a coating is applied to the at least one substrate while the at least one substrate is bombarded by ions from a dual RF-ion source along thea deposition zone, forming at least one coated substrate within the deposition zone, and reloading the at least one coated substrate onto a respective take-up spool, wherein the dual RF-ion source includes first and second RF-ion sources bi-laterally oriented with respect to the at least one substrate and on the same side of the substrate, the first and second RF-ion sources extending along a plane normal to the longitudinal axis of the at least one substrate so as to be aimed at respective first and second portions of the same major surface of the at least one substrate and bombard the respective first and second portions of the same major surface of the at least one substrate, and wherein a separator is disposed within the deposition chamber and between the bilaterally oriented dual RF-ion sources, the separator being oriented along a direction that longitudinally bisects the-substrate block and functioning to barricade impingement of ions from the first RF-ion source on the second portion and barricade impingement of ions from the second RF-ion source on the first portion.

2. (Previously Presented) The method of claim 1 where the respective feed spool and take-up spools are located external to the deposition chamber.

3. (Previously Presented) The method of claim 1 where the at least one substrate is inter-spooled with kapton polymer protective tapes.

4. (Previously Presented) The method of claim 1 where the coating is generated from a deposition source, the deposition source is an electron beam evaporator.

5. (Original) The method of claim 1 where from about 2 to about 12 substrates are simultaneously being coated.

6. (Original) The method of claim 1 where at least two substrates are simultaneously being coated.

7. (Currently Amended) A method of continuously coating at least one substrate with a buffer layer as a support for a ceramic superconducting material comprising:
providing at least one substrate feed spool of substrate, the substrate having opposite major surfaces,
unspooling and threading the at least one substrate through a vacuum deposition chamber,
loading coating material that is to be deposited onto a surface of the at least one substrate into the vacuum deposition chamber,
reducing the pressure in the deposition chamber to no greater than about 10^{-5} Torr,
injecting oxygen into the deposition chamber,
initializing dual RF-ion sources located in the deposition chamber to a pre-determined power level and trajectory where the resulting ion beams are directed toward the at least one substrate tape translating through a deposition zone in the deposition chamber, wherein the dual RF-ion source includes first and second RF-ion sources bi-laterally oriented with respect to the at least one substrate and on the same side of the substrate, the first and second RF-ion sources extending along a plane normal to the longitudinal axis of the at

least one substrate so as to be aimed at respective first and second portions of the same major surface of the at least one substrate and bombard the respective first and second portions of the same major surface of the at least one substrate, and wherein a separator is disposed between the bilaterally oriented dual RF-ion sources, the separator being oriented along a direction that longitudinally bisects the a substrate block and functioning to barricade impingement of ions from the first RF-ion source on the second portion and barricade impingement of ions from the second RF-ion source on the first portion,

eroding the coating material by bombarding the coating material with electrons or ions produced by an energy source selected from the group consisting of DC electron beam, magnetron and ion beam energy sources,

feeding the at least one substrate across the substrate block through a deposition zone in the vacuum chamber,

allowing the coating material eroded from the coating source to impinge upon a surface of the at least one substrate for a period of time sufficient to deposit a coating of evaporated coating material onto the tape forming at least one coated substrate, and

collecting the at least one coated substrate on a respective take-up spool.

8. (Previously Presented) The method of claim 7 wherein RF ion sources are arranged on opposite sides of the coating source in a manner such that the resulting ion beams are directed toward the at least one substrate at incident angles of approximately 55 degrees.

9. (Currently Amended) A method of continuously coating a plurality of substrates with a buffer layer as a support for a ceramic superconducting material comprising loading the plurality of substrates onto respective feed spools, feeding the plurality of substrates across a substrate block within a

deposition zone in through a vacuum deposition chamber wherein a coating is applied to one of two opposite major surfaces of each of the plurality of substrates in a deposition zone while being bombarded by dual RF-ion sources which are directed at the plurality of substrates at an incident angle of about 55 degrees and reloading the plurality of substrates onto respective take-up spools, wherein the dual RF-ion source includes first and second RF-ion sources bi-laterally oriented with respect to the at least one substrate and on the same side of the substrate, the first and second RF-ion sources extending along a plane normal to the longitudinal axis of the at least one substrate so as to be aimed at respective first and second portions of the same major surface of the at least one substrate and bombard the respective first and second portions of the same major surface of the at least one substrate, and wherein a separator is disposed within the deposition chamber and between the bilaterally oriented dual RF-ion sources, the separator being oriented along a direction that longitudinally bisects the substrate block and functioning to barricade impingement of ions from the first RF-ion source on the second portion and barricade impingement of ions from the second RF-ion source on the first portion.

10. (Previously Presented) The method of claim 1, wherein the separator is provided in the vacuum deposition chamber so as to isolate respective ion beams from the first and second RF-ion sources from each other.

11. (Previously Presented) The method of claim 1, wherein the vacuum deposition chamber houses a substrate block along which the at least one substrate translates, wherein the first and second RF-ion sources are focused on different portions of the substrate block.